AM251

AM251 is a synthetic compound that acts as a selective cannabinoid type-1 (CB1) receptor antagonist or inverse agonist. In simple terms, it blocks or reduces the activity of CB1R in the endocannabinoid system. This compound has been widely used in scientific research to study the role of CB1 receptors and the endocannabinoid system in various physiological processes and conditions.

Here are some key points about AM251:

Pharmacological Action: AM251 is classified as a CB1 receptor antagonist, which means it binds to and blocks CB1 receptors in the body. This action can counteract the effects of CB1 receptor activation by cannabinoids, including the psychoactive effects of compounds like THC found in cannabis.

Research Tool: AM251 has been used as a research tool to investigate the functions of the endocannabinoid system. Researchers have used it to explore the roles of CB1 receptors in areas such as pain perception, appetite regulation, memory, and addiction.

Cannabis Research: AM251 has been particularly valuable in studies related to cannabis and cannabinoids. By blocking CB1 receptors, researchers can gain insights into the specific effects of cannabinoids on the CB1 receptor system and how these effects contribute to the overall actions of cannabis.

Potential Therapeutic Applications: While AM251 itself is not used as a medication, research involving CB1 receptor antagonists like AM251 has contributed to the development of potential therapeutic approaches. For example, CB1 receptor antagonists have been explored as treatments for obesity and addiction, as they can reduce the rewarding effects of substances like opioids and cannabinoids.

Side Effects: CB1 receptor antagonists like AM251 can have side effects, which are often related to the endocannabinoid system's role in various physiological processes. These side effects can include changes in mood, appetite, and cognitive function.

Legal Status: AM251 is a controlled substance in many countries due to its potential for abuse and its use in scientific research related to cannabinoids. It is important to note that its use in research is strictly regulated.

AM251 and similar compounds have played a significant role in advancing our understanding of the endocannabinoid system and its implications for both normal physiology and pathological conditions. They are valuable tools for researchers studying the complex interactions between cannabinoids and the body's CB1 receptors.

Numerous studies have shown that the endocannabinoid system, specifically the cannabinoid type-1 receptor (CB1R), plays an important role in traumatic memory. However, the effect of basolateral amygdala (BLA) CB1R in social fear memory formation and elimination is still unclear. Here, we built a mouse model of social avoidance induced by acute social defeat stress to investigate the role of BLA CB1R in social fear memory formation and anxiety- and depression-like behavior. Anterograde knockout of CB1R in BLA neurons facilitates social fear memory formation and manifests an anxiolytic effect but does not influence sociability and social novelty. Retrograde knockout of CB1R in BLA

promotes social fear memory formation and shows an anxiogenic effect but does not affect sociability and social novelty. Moreover, intracerebral injection of the CB1R antagonist AM251 in BLA during the memory reconsolidation time window eliminates social fear memory. Our findings suggest the CB1R of BLA can be used as a novel molecular target in social fear memory formation and elimination and potential PTSD therapy with memory retrieval and AM251 [1]

[1]

Li M, Lv X, Li T, Cui C, Yang X, Peng X, Lei J, Yang J, Ren K, Luo G, Shi Y, Yao Y, Tian B, Zhang P. Basolateral Amygdala Cannabinoid CB1 Receptor Controls Formation and Elimination of Social Fear Memory. ACS Chem Neurosci. 2023 Sep 17. doi: 10.1021/acschemneuro.3c00297. Epub ahead of print. PMID: 37718490.

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